Basic and Applied Science Research at the Los Alamos Neutron Science Center

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The Los Alamos Neutron Science Center, or LANSCE, is a National User Facility. Experiments at LANSCE use beam from the 800-MeV proton linear accelerator to execute an extraordinarily broad program of basic and applied science. Recent investments in the LANSCE complex have provided essential infrastructure upgrades and new scientific capabilities in each of three major areas: Proton radiography (pRad), which uses the proton beam directly from the accelerator to image dynamic materials properties, the Lujan Neutron Scattering Center (Lujan Center), which produces a moderated neutron source (meV to keV) for neutron-scattering research to investigate properties of materials, biological molecules, and condensed matter physics and to support a program of nuclear astrophysics and fundamental physics; and the Weapons Neutron Research Facility (WNR), which produces an unmoderated neutron source (keV to 800 MeV) for research in nuclear science and technology, as well as for testing industrial components such as computer circuits and systems in a high-energy neutron field. During 2004, LANSCE commissioned a facility for producing medical radioisotopes as well as an ultra-cold neutron source. This gives LANSCE the ability to produce and use neutrons with energies that range over 14 orders of magnitude. This talk will describe the facility and give highlights of recent research related to nuclear science and technology.

LA-UR-04-6316

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